

Art Unit: 1753
Serial No: 09/833,036
Examiner: Versteeg, Steven H.

REMARKS

In the Final Office Action, claims 1, 4, and 15 were rejected; claims 3 and 5-11 were objected to; and claims 12-14 and 25-33 were allowed. Claims 3 and 7-11 were indicated as being allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims.

By present amendment, claims 16-24 were canceled as being drawn to non-elected subject matter. Claim 3 was canceled, and its subject matter was incorporated into independent claim 1. Thus, after entry of this Amendment, claims 1, 4, 7-15 and 25-34 will be pending in the application.

Acknowledgment of Priority

Applicant gratefully acknowledges the Examiner's entry of Applicant's priority papers.

Allowable Subject Matter

Applicant gratefully acknowledges the allowance of the Examiner's indication that claims 12-14 and 25-33 were allowed, and that claims 3 and 7-11 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. As noted above, Applicant amended independent claim 1 to include the subject matter of claim 3, which was cancelled.

Double Patenting

Claims 5 and 6 were objected to under 37 C.F.R. §1.75 as being substantial duplicates of claims 25 and 28. Applicant disagrees and in any event, in view of the amendment to claim 1, Applicant disagrees that claims 5 and 6 are certainly not duplicates of claims 25 and 28. Withdrawal of the rejection is respectfully requested.

Rejections under 35 U.S.C. §103(a)

A. Claims 1 and 15 were rejected under 35 U.S.C. §103(a) as being unpatentable over Haba in view of Mount.

In the Final Office Action, the Patent Office stated that the burden had shifted to Applicants to provide evidence that sputtering would not be equivalent to electroplating on resist. Applicant disagrees with the Patent Office. Nonetheless, in the interest of furthering prosecution of the application, Applicant hereby submits several references filed in an accompanying IDS. It is well known that “[c]athode sputtering...produces too much heat for the sensitive photoresist” (See Page 3, last full paragraph of LeMaster, Edward, Compact Disc Manufacturing Procedures and Processes, March 1994). It is also well known that “...resist is incompatible with most MEMS deposition processes, usually because it cannot withstand temperatures and may act as a source of contamination.” (See Page 3, first paragraph @ www.memsnet.org/mems/beginner/lithography.html). It is also known that “...the plasma used for sputtering...crosslinks the photoresist while the nickel is being deposited...makes it difficult to get the photoresist off the surface...” (See Page 4, Paragraph heading “Metalizing” @ www.optical-disc.com/needtoknow.html). The foregoing provides ample evidence that it has been well known for many years that the heat generated during physical vapor deposition processes, such as sputtering, make any underlying photoresist difficult or impossible to remove after the sputtering has taken place.

It is also well known that sputtering is a conformal process that results in coverage of the top and sidewalls of structures (see Page 3, bottom paragraph of Barnes, Scott, Image Reversal of Positive Photoresists, 1987). Thus, even if the photoresist is not crosslinked during the sputtering process, the sidewalls of the resist pattern become sufficiently covered by metal so as to impede penetration of the resist by the solvents required for its dissolution and removal.

Thus, one of ordinary skill in the art of Haba would not be motivated to substitute the electroplating process of Haba with the sputtering process of Mount.

Even if one of ordinary skill in the art were motivated to do so, the combination of Haba and Mount is deficient because the inability to remove the underlying photoresist would render the structure of Haba unuseable for its intended purpose.

In view of the amendment of claim 1, its rejection over Haba in view of Mount is now moot.

Independent claims 1 and 15 are therefore patentable over Haba in view of Mount, alone or in combination, and the claims that depend therefrom directly or indirectly are patentable for at least the same reasons. Withdrawal of the rejection is respectfully requested.

B. Claims 1, 4, and 15 were rejected under 35 U.S.C. §103(a) as being unpatentable over to D'Ottavio in view of Mount.

Applicant respectfully disagrees for the same reasons discussed above with respect to the rejection of Haba in view of Mount, which comments are incorporated herein by reference.

Thus, one of ordinary skill in the art would not be motivated to substitute the electroplating process of D'Ottavio with the sputtering process of Mount.

Even if one of ordinary skill in the art were motivated to do so, the combination of Haba and Mount is deficient because the inability to remove the underlying photoresist would render the structure of D'Ottavio unuseable for its intended purpose.

In view of the amendment of claim 1, its rejection over D'Ottavio in view of Mount is now moot.

Independent claims 1 and 15 are therefore patentable over D'Ottavio in view of Mount, alone or in combination, and the claims that depend therefrom directly or indirectly are patentable for at least the same reasons. Withdrawal of the rejection is respectfully requested.

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CONCLUSION

In view of the foregoing amendments and remarks, the Applicants respectfully submit that all of the claims pending in the above-identified application are in condition for allowance, and a notice to that effect is earnestly solicited.

If the present application is found by the Examiner not to be in condition for allowance, then the Applicants hereby request a telephone or personal interview to facilitate the resolution of any remaining matters. Applicants' attorney may be contacted by telephone at the number indicated below to schedule such an interview.

The U.S. Patent and Trademark Office is authorized to charge any additional fees incurred as a result of the filing hereof or credit any overpayment to our deposit account #19-0120.

Respectfully submitted,
GABRIELE, Alfred M. et al., Applicants

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By: 

Michele J. Young, Reg. No. 43,299
Applicants' Attorney
SALTER & MICHAELSON
321 South Main Street
Providence, Rhode Island 02903
Telephone: 401/421-3141
Facsimile : 401/861-1953
Customer No. 000987